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Attorney Docket No. 33079/US/2

IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Tsu-Wei CHEN, et al.

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Application No.: 10/613,994

Examiner: R.M. Osman

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Group Art Unit: 2157

Title: PACKET ROUTING VIA PAYLOAD INSPECTION FOR DIGITAL CONTENT DELIVERY

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Sir:

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on February 8, 2008.

- ☒ The fee for filing this Appeal Brief is \$510.00 (37 CFR 41.20).  
☐ No Additional Fee Required.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

- ☒ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

1ST MONTH	2ND MONTH	3RD MONTH	4TH MONTH
\$120.00 <input checked="" type="checkbox"/>	\$460.00 <input type="checkbox"/>	\$1,050.00 <input type="checkbox"/>	\$1,640.00 <input type="checkbox"/>

☐ The extension fee has already been filed in this application.

- ☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to **Deposit Account 50-2849** the sum of **\$630.00**. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 50-2849 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 50-2849 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.

Respectfully submitted,

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**Appl. No.** : 10/613,994  
**Applicant** : Tsu-Wei Chen, et al.  
**Filed** : July 8, 2003  
**Title** : PACKET ROUTING VIA PAYLOAD INSPECTION FOR  
DIGITAL CONTENT DELIVERY  
**TC/A.U.** : 2157  
**Examiner** : OSMAN, Ramy M.  
**Docket No.** : 33079/US/2  
**Customer No.** : 022879

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Commissioner of Patents  
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**APPEAL BRIEF UNDER 37 C.F.R. §41.37**

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## TABLE OF CONTENTS

	<u>Page</u>
I. REAL PARTY IN INTEREST.....	3
II. RELATED APPEALS AND INTERFERENCES .....	4
III. STATUS OF CLAIMS .....	5
IV. STATUS OF AMENDMENTS .....	6
V. SUMMARY OF CLAIMED SUBJECT MATTER.....	7
VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL .....	8
VII. ARGUMENT.....	9
A. Challenger in View of Speakman Fails to Teach or Suggest Each and Every Limitation of Claims 1-16 and 18-24.....	9
1. The References Fail to Describe a Routing Box that Receives Digital Content as Files and Uses a Filter to Selectively Transfer the Digital Content Files to the Cache Servers .....	9
2. The References Fail to Describe Propagating a Filter to a Routing Box.....	10
B. The Claimed Invention is Described in the Specification is Clearly Recited, and Meets the Requirements of 35 U.S.C. § 112. ....	11
CLAIMS APPENDIX .....	xiii
RELATED PROCEEDINGS APPENDIX.....	xviii

**I. REAL PARTY IN INTEREST**

Precache, Inc. is the real party in interest.

## **II. RELATED APPEALS AND INTERFERENCES**

There are no other related appeals or interferences.

### **III. STATUS OF CLAIMS**

Claims 1-16 and 18-24 are pending in this application. Claims 1-16 and 18-24 stand rejected. Applicants appeal the rejection of claims 1-16 and 18-24.

#### **IV. STATUS OF AMENDMENTS**

The Applicants filed an amendment after final. The amendment was filed to overcome an objection to claim 2. No new matter was added. The amendment was entered.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

The application discloses a novel and nonobvious method and apparatus for routing packets in a network for use in distributing digital content to subscribers. The network includes a plurality of user machines, a central distributor that regularly distributes digital content, a plurality of cache servers that receive and cache the distributed digital content, wherein the cache servers periodically receive user requests from user machines for certain of the cached digital content and forward the requested digital content to the user machines (*e.g.*, see FIG. 5, p. 12, ln. 10 to p. 12, ln. 10). The method and apparatus further includes a routing box that receives the distributed digital content as files from the central distributor and transfers the digital content files to the plurality of cache servers using a publish-subscribe content-based routing, wherein the digital content files are publications and the user requests are subscriptions and wherein the routing box receives a filter and uses the filter to selectively transfer the digital content files to one or more of the plurality of cache servers (*e.g.*, see FIG. 14, p. 29, ln. 3 to p. 30, ln. 13). No prior art routes packets in a network for use in distributing digital content to subscribers using a routing box that receives the distributed digital content as files from the central distributor and transfers the digital content files to the plurality of cache servers using a publish-subscribe content-based routing, and wherein the routing box receives a filter and uses the filter to selectively transfer the digital content files to one or more of the plurality of cache servers, as in the claimed invention.

The application discloses another novel and nonobvious method for distributing digital content to subscribers in a network by distributing digital content from a central distributor, propagating a filter to a routing box in the network, applying content-based routing to distribute digital content to a plurality of cache servers using the filter to selectively route the digital content, caching the content-based routed digital content at the plurality of cache servers, receiving user subscriptions for requested cached digital content, and transferring requested digital content from the plurality of cache servers to users based on the received user subscription (*e.g.*, see FIG. 13, p. 26, ln. 31 to p. 29, ln. 11). As above, no prior art routes packets in a network for use in distributing digital content to subscribers using a routing box that receives the distributed digital content as files from the central distributor and transferring the digital content files to the plurality of cache servers using a publish-subscribe content-based routing, and propagating a filter to the routing box, and selectively distributing the digital content files to one or more of the plurality of cache servers, as in the claimed invention.



## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

(1) Claims 1 - 16 and 18 - 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,567,893 to Challenger et al. ("Challenger") in view of U.S. Patent 6,055,364 to Speakman et al. ("Speakman") (See Office Action, p. 3, para. 6); and

(2) Claim 1 under 35 U.S.C. § 112, ¶ 2 stand rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. (See Office Action, p. 2, para. 4).

## VII. ARGUMENT

The pending claims are patentable over the cited prior art. As noted above, the Office Action sets forth two grounds for rejection, one under 35 U.S.C. § 112 and the other under 35 U.S.C. § 103.

The rejection set forth by the Examiner under 35 U.S.C. § 112 must fail because all of the pending claims are supported by the specification, therefore are not indefinite.

The rejections set forth by the Examiner under 35 U.S.C. § 103 must fail because Challenger and Speakman, alone or in combination, fail to describe each and every limitation of the independent claims. Since the prior art references alone or in combination, fail to teach or suggest all of the claim limitations, the Final Office Action fails to establish a *prima facie* case of obviousness and the claims must be allowed.

### **A. Challenger in View of Speakman Fails to Teach or Suggest Each and Every Limitation of Claims 1-16 and 18-24**

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all of the claim limitations. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) and MPEP § 2142. Challenger and Speakman fail to teach or suggest all of the claims limitations of claims 1-16 and 18-24.

#### **1. The References Fail to Describe a Routing Box that Receives Digital Content as Files and Uses a Filter to Selectively Transfer the Digital Content Files to the Cache Servers**

For example, Challenger in view of Speakman fails to teach or suggest “a router box that receives the distributed digital content as files from the central distributor and transfers the digital content files to the plurality of cache servers, and wherein the routing box receives a filter and uses the filter to selectively transfer the digital content files to the one or more of the plurality of cache servers,” as recited in claim 1. The Examiner admits that Challenger fails to describe this feature. See Office Action, p. 4, para. 8. Speakman does not overcome this defect. Speakman does not teach or suggest this feature or anything else that would teach or suggest modifying Challenger to include this feature.

Speakman is directed to content-based filtering of multi-cast data. Speakman provides little guidance as to how the content is distributed and how the content-based filtering is completed. At most, Speakman discloses use of a mapping server 150 to distribute digital content to recipients 120 from servers 110 over network 130. See Col. 2, lines 32-45.

In Speakman, a mapping server associates a set of content descriptors for information with a set of multicast addresses. See Col. 1, lines 42-45. A set of sources and recipients associate themselves with the multicast addresses and their multi-cast distribution trees, so as to distribute information of interest to recipients broadly without excess use of multicast addresses. See Col. 1, lines 45-50. Nothing in these cited sections or anywhere else in Speakman teaches or suggests a routing box that receives distributed digital content and transfers the content to cache servers. Moreover, Speakman does not teach or suggest selectively transferring digital content to cache servers using publish-subscribe based routing and a filter. Furthermore, Speakman does not teach or suggest a routing box receiving a filter. Therefore, Challenger in view of Speakman does not render claim 1 obvious. Dependent claims 2-12 are not rendered obvious for at least these reasons and their own independent features.

## **2. The References Fail to Describe Propagating a Filter to a Routing Box**

Challenger in view of Speakman fails to teach or suggest “propagating a filter to a routing box in the network,” as recited in claim 13. Therefore, claim 13 is also not rendered obvious. As the Examiner admits, Challenger fails to describe the feature of distributing digital content to subscribers in a network and a filter to selectively transfer digital content files to one or more of the plurality of cache servers. Consequently, Challenger must also fail to teach or suggest the feature of *propagating a filter* to a routing box, as in claim 13.

Speakman does not teach or suggest this feature or anything else that would teach or suggest modifying Challenger to include this feature. Speakman discloses sources that transmit multi-cast packets that include content descriptors. In Speakman, the recipients and network elements distribute multicast packets in response to the content descriptor. See Col. 4, lines 15-20. Furthermore, Speakman does not disclose how the content descriptor is used to distribute packets. Speakman does not teach or suggest that the content descriptors are filters, so transmitting a content descriptor is not propagating a filter. Indeed, Speakman does not teach or suggest propagating a filter at all, nor does it teach or suggest propagating a filter to a routing box.

Likewise, Speakman does not teach or suggest “content-based routing...using the filter to selectively route the digital content,” as recited in claim 13. Since the filter must be propagated in this step and Speakman does not teach or suggest propagating the filter, Speakman cannot teach or suggest the recited “content-based routing...using the filter.” Moreover, Speakman does not teach or suggest content-based routing to cache servers using a

filter. Therefore, Challenger in view of Speakman does not render claim 13 obvious. Dependent claims 14-16 and 18-24 are not rendered obvious for at least these reasons and for their own independent features.

Therefore, Challenger in view of Speakman does not render independent claims 1 and 13 obvious. Dependent claims 2-12, 14-16 and 18-24 are not rendered obvious for at least these reasons and their own independent features.

**B. The Claimed Invention is Described in the Specification is Clearly Recited, and Meets the Requirements of 35 U.S.C. § 112.**

The statutory definiteness requirements include particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention. 35 U.S.C. § 112. In rejecting claim 1 under 35 U.S.C. § 112, ¶ 2, the Office Action states that it “is unclear whether the routing box uses publish-subscribe based routing to transfer the digital content files or if it uses the filters to transfer the digital content files...or how it is possible for both to be used in a way that avoid conflicts in the routing procedures.” See Office Action, p. 2, para. 4.

By its plain language, the routing box of claim 1 transfers the digital content files using publish-subscribe based routing and uses a filter to perform this publish-subscribe based routing. Claim 1 recites, “...a routing box that receives the distributed digital content as files from the central distributor and transfers the digital content files to the plurality of cache servers using a publish-subscribe content-based routing...the routing box receives a filter and uses the filter to selectively transfer the digital content files to one or more of the plurality of cache servers.” The filters are applied to allow intelligent, publish-subscribe routing of the digital content files. This is described in the specification at least at page 5, lines 6 to 16. Accordingly, Applicants contend that the subject matter of claim 1 is not indefinite and request withdrawal of the rejection of claim 1 under 35 U.S.C. § 112, ¶ 2.

In view of the above, all of the pending claims are allowable. Applicants respectfully request allowance of the claims.

The appeal brief fee in the amount of **\$510.00** is being submitted with the accompanying transmittal letter. However, should there be any additional fees required for this appeal brief, please charge any additional fees required or credit any over payment to **Deposit Account 50-2849** pursuant to 37 CFR 1.25.

Respectfully submitted,



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## CLAIMS APPENDIX

Claim 1 (Previously Presented): A network for distributing digital content to subscribers, comprising:

- a plurality of user machines;
- a central distributor that regularly distributes digital content;
- a plurality of cache servers that receive and cache the distributed digital content, wherein the cache servers periodically receive user requests from user machines for certain of the cached digital content and forward the requested digital content to the user machines; and,
- a routing box that receives the distributed digital content as files from the central distributor and transfers the digital content files to the plurality of cache servers using a publish-subscribe content-based routing, wherein the digital content files are publications and the user requests are subscriptions and wherein the routing box receives a filter and uses the filter to selectively transfer the digital content files to one or more of the plurality of cache servers.

Claim 2 (Previously Presented): The network of claim 1, wherein the routing box is a first routing box, the network further comprising a second routing box co-located with the plurality of cache servers, wherein the first routing box routes the digital content files to the second routing box co-located with at least one of the plurality of cache servers.

Claim 3 (Original): The network of claim 1, wherein the plurality of cache servers are located at a network service provider.

Claim 4 (Original): The network of claim 1, wherein the plurality of cache servers are a first level of cache servers that store all the digital content distributed by the central distributor.

Claim 5 (Original): The network of claim 4, further comprising a second level of cache servers that store a portion of the digital content distributed by the central distributor.

Claim 6 (Original): The network of claim 5, wherein the routing box is a first routing box, the network further comprising a second routing box co-located with the second level of cache servers, wherein the first routing box and the second routing box transfer digital content files from the first level of cache servers to the second level of cache servers using a publish-subscribe content-based routing.

Claim 7 (Previously Presented): The network of claim 6, wherein each of the routing boxes include:

a receive module for receiving a packet having a header section and a payload section, the payload section including information relating to a digital content file;

an inspect module for inspecting the payload section of the packet for use in determining how to route the packet; and

a route module for selectively routing the packet from the first level of cache servers to the second level of cache servers based upon the inspecting.

Claim 8 (Original): The network of claim 5, wherein the portion of the digital content stored by the second level of cache servers is determined based on a history of received user requests.

Claim 9 (Original): The network of claim 5, wherein the second level of cache servers directly receive the user requests and forward user requests to the first level of cache servers for digital content not stored by the second level of cache servers.

Claim 10 (Previously Presented): The network of claim 1, wherein the routing box includes:

a receive module for receiving a packet having a header section and a payload section, the payload section including information relating to a digital content file;

an inspect module for inspecting the payload section of the packet for use in determining how to route the packet; and

a route module for selectively routing the packet from the central distributor to the plurality of cache servers based upon the inspecting.



Claim 11 (Original): The network of claim 1, wherein the central distributor comprises one or more servers.

Claim 12 (Original): The network of claim 1, wherein the digital content includes video, music and software.

Claim 13 (Previously Presented): A method for distributing digital content to subscribers in a network, comprising:

- distributing digital content from a central distributor;
- propagating a filter to a routing box in the network;
- content-based routing the distributed digital content to a plurality of cache servers using the filter to selectively route the digital content;
- caching the content-based routed digital content at the plurality of cache servers;
- receiving user subscriptions for requested cached digital content; and,
- transferring requested digital content from the plurality of cache servers to users based on the received user subscription.

Claim 14 (Original): The method of claim 13, the content-based routing step including:

- receiving a packet having a header section and a payload section, the payload section including information relating to a digital content file;
- inspecting the payload section of the packet for use in determining how to route the packet; and
- selectively routing the packet to the plurality of cache servers based upon the inspecting.

Claim 15 (Original): The method of claim 14 wherein the inspecting step includes determining whether information in the payload section matches content predicate information in a structure associating the content predicate information with corresponding destinations.



Claim 16 (Previously Presented). The method of claim 14 wherein the inspecting step includes applying [a] the filter to information in the payload section.

Claim 17 (Canceled):

Claim 18 (Previously Presented): The method of claim 14, further including programming the routing box in the network for performing the receiving, inspecting, and routing steps.

Claim 19 (Original): The method of claim 14 wherein the inspecting step includes inspecting attributes for use in determining how to route the packet.

Claim 20 (Previously Presented): The method of claim 14, further including performing the inspecting step in the routing box.

Claim 21 (Original): The method of claim 13, wherein the plurality of cache servers is a first level of cache servers, the method further including transferring cached digital content to a second level of cache servers using content-based routing.

Claim 22 (Original): The method of claim 21, further comprising determining whether the requested digital content is at the second level of cache servers.

Claim 23 (Original): The method of claim 22, further comprising transferring received user subscriptions to the first level of cache servers based on the determination.

Claim 24 (Original): The method of claim 21, wherein the transferring step transfers cached digital content to the second level of cache servers using content-based routing based on a history of received user subscriptions.

## EVIDENCE APPENDIX

No evidence submitted.

## **RELATED PROCEEDINGS APPENDIX**

No related proceedings.